

JOURNAL

OF THE

New York Entomological Society.

Vol. II.

JUNE, 1894.

No. 2.

ON THE LYCOSIDÆ OF COLORADO.

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In 1877 Dr. T. Thorell described in the Bull. U. S. Geol. Survey, ten new species of Lycosidæ from Colorado. They were chiefly collected in the central and northern portions of the state. Since then no other species have been recorded from the state. During the past few years, I have received several collections of spiders from Colorado; principally from Dr. C. F. Baker, Mr. T. D. A. Cockerell, and Prof. C. P. Gillette. From these I have been enabled to determine several of Dr. Thorell's species and to recognize some new forms. A mountainous region is especially rich in Lycosidæ, so that from more extended collecting we may expect many more forms.

Lycosa, Thorell is what American students know as *Pardosa*; *Tarantula*, Thorell is our *Lycosa*. Thorell, in the paper quoted, questioned whether Latreille had ever considered *Lycosa tarantula* as the type of the genus. Latreille, in his "Ordre Naturel des Crustacés", distinctly gives *L. tarantula* as the type.

Lycosa grandis, sp. nov.

Length 22 mm.; ceph. 11 mm. Cephalothorax brown, with a narrow pale yellow stripe in the middle, reaching to eyes of second row; a broad yellow stripe each side on the margins; mandibles brown with long white hairs; maxille and lip dark brown; sternum, coxæ and legs pale yellowish, without spots or marks; the tarsi and tips of metatarsi brownish; abdomen brownish above, showing a basal spear-mark and a few small spots, sides and venter wholly pale yellow; spinnerets brownish. Anterior row of eyes procurved, shorter than the second row, which are less than their diameter apart. Legs large and stout, IV pair about three times as long as the cephalothorax. The tibia of the male palpus is about twice as long as broad; the hook short and blunt, the tube long and slender.

One male Fort Collins, Colorado (Baker): This species is readily recognized by its large size and pale color.

***Lycosa carolinensis* Hentz.**

A male from Ft. Collins seems to belong to this species, but the cephalothorax is paler and the abdomen is distinctly spotted above.

***Lycosa coloradensis*, sp. nov.**

Length ♂ 11—13 mm. Cephalothorax pale gray, with a brown stripe each side reaching from the eyes to near hind margin, widest on the thoracic portion, and sometimes there broken into spots; eyes on a black band; mandibles yellow-brown; maxilla, lip, sternum and coxæ black; legs yellowish, black bands at tips of the femora and tibiæ distinct below, barely showing above; also a band on tips of posterior metatarsi; tips of tarsi blackish; abdomen yellowish above, with a brown basal spear-mark and a number of brown spots somewhat regularly connected to each other and to the spear-mark; some isolated spots on the sides; venter pale, with a black spot covering the base of abdomen as far as the lung slits; also an apical black spot in front of the spinnerets. Anterior row of eyes equal, procurved, shorter than the second row, which are nearly their diameter apart and larger than those of the third row; legs moderately slender, the IV pair about three and one-half times as long as the cephalothorax; tibia of male palpus one and one-half times as long as broad; the palpal organ with a large, transverse basal body, from under which projects the quite slender and sharp-pointed hook; above a rounded, transversely-ridged body. The ♀ is similar to the ♂ (15 mm. long), with shorter legs. The epigynum is red, it is an oblong cavity with undulate margins, from the bottom projects a capitate septum.

Two males and two females; Ft. Collins, Colo. (Baker). Readily recognized by the coloring of the under side of the body.

***Lycosa scalaris* Thorell, (sub *Tarentula*).**

Two specimens, Fort Collins (Baker), and two West Cliff (Cockerell). It has considerable resemblance to *L. communis* Em. but is distinct.

***Lycosa modesta* Thorell, (sub *Tarentula*).**

Two specimens Ft. Collins (Gillette and Baker); three West Cliff (Cockerell). It has some resemblance to the eastern *L. nigroventris*.

***Lycosa brunneiventris*, sp. nov.**

Length 12 mm. Cephalothorax brown, black around eyes, with a broad, central, pale stripe; sternum and coxæ dark brown; legs yellow-brown, the femora somewhat darkened above but without any distinct rings; abdomen brownish above with a basal black spear-mark, giving off behind several black chevrons; venter pale brown. The cephalothorax is barely shorter than tibia plus patella IV, and about one-third the length of leg IV; anterior row of eyes nearly straight, barely shorter than the second row, which are no larger than those of the third and fully

their diameter apart. Epigynum very small, a short flask-shaped cavity containing a septum, which in front is only a line, but behind triangular and very broad.

One female, Ft. Collins, Colo. (Baker). Under stones. Resembles the preceding species but has a pale venter and quite different epigynum.

***Pardosa concinna* Thorell, (sub *Lycosa*).**

Several specimens, Ft. Collins, under stones, (Baker); West Cliff (Cockerell). Very much like the eastern *P. brunnea* Em. which may be only a variety.

***Pardosa sternalis* Thorell, (sub *Lycosa*).**

One specimen, Ft. Collins, sweeping alfalfa (Baker). Another (Gillette).

***Pardosa coloradensis*, sp. nov.**

Length 6—7 mm. Cephalothorax marked as in *P. concinna* Th.; legs darker and with distinct blackish rings; sternum dark-brown; venter pale; abdomen black above, with a pale basal spear-mark, and behind two converging rows of pale spots, much more distinct than in *P. concinna*. The epigynum consists of an oval area, with a small cavity in its posterior portion nearly covered by a short lobe.

Three females, West Cliff, Colo. (Cockerell). Darker and slightly larger than *P. concinna* and with entirely different epigynum.

***Pardosa uncata* Thorell, (sub *Lycosa*).**

Two immature specimens from Ft. Collins (Baker), I believe belong to this species.

***Pardosa dorsalis*, sp. nov.**

Length 6 mm. Cephalothorax dark brown, head black, the usual pale central, constricted and geminated stripe very distinct; faint indications of a few very small lateral spots; sternum dark brown; legs yellow-brown, distinctly ringed with black on femora, tibiae and metatarsi; abdomen with an obscure pale stripe above, containing a basal, black-margined spear-mark, behind which is a series of transversal connected spots; venter brownish, paler at base. The epigynum consists of a cavity broader than long, nearly covered by a large rounded lobe, full as broad as long and slightly broader in the middle than at base.

One female, of the usual form of the genus but distinguished by its peculiar epigynum. West Cliff (Cockerell).

***Pardosa indagatrix* Thorell, (sub *Lycosæ*).**

Several specimens which I refer to this species from Ft. Collins, under stones (Baker and Gillette).

***Pardosa iracunda* Thorell, (sub *Lycosa*).**

In the pale color of the patella of the male palpus this resembles *P. minima* Keys., but the palpal organ is quite different and the species is larger. One male and one female. Ft. Collins, Colo. (Baker). One male (Gillette).

***Pardosa atra*, sp. nov.**

Length 7 mm. Black, with an indistinct pale central mark on the cephalothorax, no lateral marks; sternum black; legs black and thickly black-haired, with indistinct pale rings on the tibiae and metatarsi, coxae with pale spots at base; abdomen black, with a broad but very obscure pale stripe above; venter pale on basal half, rest black. The epigynum consists of a red, oval area, with a cavity in the posterior portion, which is much the broader in front, and is divided by a clavate septum, narrower than the space each side.

One female, West Cliff (Cockerell).

***Trochosa cinerea* Fabr.**

Two specimens, Ft. Collins, Colo. (Baker), one from West Cliff (Cockerell).

***Trochosa parva*, sp. nov.**

Length 6—8 mm. Cephalothorax yellow, eye-region black, an irregular black stripe each side on the thoracic part, the margins black; mandibles blackish; sternum brownish, paler in the centre; coxae yellow; venter gray; legs yellow with many distinct black spots and bands; abdomen yellowish-gray above, with a basal black-margined spear-mark, and behind several black chevrons and spots. Head low; anterior row of eyes as long as second row; legs thickly clothed with fine erect hairs; sternum constricted between the hind coxae; epigynum a blackish lobe, longer than broad and emarginate behind; the male palpus is similar to that of *T. cinerea*, but the tarsus is not as slender and the tube has a little tooth above, the hook is quite long, slender and curved, the patella is barely longer than broad. This species shows the same variation in coloring as *T. polita* Em.; the small specimens have the sides of the cephalothorax shining blackish, and a pale space above; the abdomen is more densely spotted.

Several specimens, Ft. Collins, Colo., under stones. (Baker, and Gillette).

***Dolomedes scriptus* Heutz.**

One specimen, Ft. Collins (Baker).

***Pardosa sinestra* Th., *P. tristis* Th., and *P. impavida* Th.** are all unknown to me.